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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,771	12/20/2001	Kenji Otsuka	217364US3X	6898

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EXAMINER

ZERVIGON, RUDY

ART UNIT PAPER NUMBER

1763

DATE MAILED: 01/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,771

Applicant(s)

OTSUKA ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,10,11 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,5,10,11 and 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/12/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 3, 5, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoist, Mark et al (U.S.Pat. 5,955,037) in view of Malcolm, David H. (US 4,541,844 A). Hoist teaches a cleaning apparatus of the “wet electrostatic precipitator” scrubber type (917; Figure 12; column 19, line 31 - column 20, line 65; column 22, lines 35-40) for cleaning exhaust gas (907; Figure 12) coming from a production apparatus (901; Figure 12), wherein an electroconductive corrosion-resistant material (steel; column 14, lines 43-49) is used as the constructional material for a pipe (907; Figure 12) to transport the exhaust gas, as claimed by claim 3. Applicant’s claim requirement of a production apparatus “for producing a gallium nitride film semiconductor by subjecting gallium chloride gas as a gallium source which is generated through the circulation of hydrogen chloride gas over metallic gallium to vapor phase deposition through the reaction with ammonia so as to form a gallium nitride film” are requirements of intended use of the claimed “production apparatus”. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

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Hoist further teaches:

- i. The cleaning apparatus according to claim 3, wherein the cleaning apparatus (917; Figure 12; column 19, line 31 - column 20, line 65; column 22, lines 35-40) is a wet absorptive cleaning apparatus, as claimed by claim 5
- ii. The cleaning apparatus according to claim 3, wherein the electroconductive corrosion-resistant material is selected from the group consisting of stainless steel (steel; column 14, lines 43-49), and high nickel steel, as claimed by claim 11

Hoist does not teach that the introduction piping is electrically grounded, or that Hoist's steel is "stainless".

Malcolm teaches a wet electrostatic precipitator grounded scrubber (Figure 3) that treats flue gasses (column 6, line 43 - column 7; line 23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to ground Holst's scrubber, including effluent pipe connecting Holst's scrubber, as taught by Malcolm and to use stainless steel in place of steel as taught by Hoist (column 27, lines 10-14).

Motivation to ground Hoist's scrubber as taught by Malcolm and to use stainless steel in place of steel as taught by Hoist is for creating charged droplets that impart "highly efficient particle collision and collection" as taught by Malcolm (column 4; lines 50-63) and for providing an alternate and equivalent material of construction.

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3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoist, Mark et al (U.S.Pat. 5,955,037) and Malcolm, David H. (US 4,541,844 A) in view of Skelley, Arthur P. et al. (US 5,206,002 A). Hoist and Malcolm are discussed above. Hoist and Malcolm do not teach detecting means for sampling exhaust gas circulating in the cleaning apparatus, or production apparatus, and detecting oxygen in said exhaust gas or measuring a concentration of oxygen therein as claimed by claim 10.

Support for this portion of claim 10 is found the specification first paragraph page 15. Specifically, the specification teaches “in addition to the use of an oxygen detector or an oxygen concentration meter”. Skelley teaches an oxygen detector (110; Figure 1, 3; column 8; lines 1-25) affixed flue line of a gas scrubber 90; Figure 1. As such, Skelley teaches an equivalent apparatus that performs the function of oxygen detection. As a result, Skelley's prior art element 110 performs the identical function of oxygen detection in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Skelley's oxygen detector to Holst's and Malcolm's effluent treatment as taught by Skelley.

Motivation to add Skelley's oxygen detector to Holst's and Malcolm's effluent treatment as taught by Skelley is for imparting control logic based on effluent gas composition as taught by both Holst (column 3; line 63 - column 4, line 8) and Skelley (column 8; lines 1-25).

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4. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holst, Mark et al (U.S.Pat. 5,955,037) and Malcolm, David H. (US 4,541,844 A) in view of Otomura et al (JP 62218966 A). Holst and Malcolm are discussed above. Holst and Malcolm do not teach an anticorrosive material resin coating with specific volume resistivities of approximately 100 Ωcm , at most $10^9\Omega\text{cm}$, and $10^7\Omega\text{cm}$.

Otomura teaches an alloy layer under an anticorrosive material resin coating with specific volume resistivities of between $10^4\Omega\text{cm}$ to $10^{12}\Omega\text{cm}$ (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Otomura's resin coating with specific volume resistivities of between $10^4\Omega\text{cm}$ to $10^{12}\Omega\text{cm}$ (abstract) to Holst and Malcolm's scrubber processing surfaces.

Motivation to add Otomura's resin coating with specific volume resistivities of between $10^4\Omega\text{cm}$ to $10^{12}\Omega\text{cm}$ (abstract) to Holst and Malcolm's scrubber processing surfaces is for enhancing electrical and mechanical durability of the protected surfaces as taught by Otomura (abstract).

5. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reif et al (USPat. 4,388,089) in view of Holst et al (USPat. 5,955,037). Reif teaches a cleaning apparatus (Figure 1; column 4; lines 14-65) configured to clean a gas ("Contaminated Gaseous Stream"; Figure 1) containing a powder ("particulate contaminants"; abstract) , the cleaning

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apparatus (Figure 1; column 4; lines 14-65) comprising: an absorption column (10; Figure 1; column 4; lines 14-65); a first inlet pipe (25,25M; Figure 1) configured to transport a contaminated gas powder (“particulate contaminants”; abstract) into the absorption column (10; Figure 1; column 4; lines 14-65), the first inlet pipe (25,25M; Figure 1) being made of an electroconductive material (column 5; lines 21-35 – see grounded portion of 10); an outlet pipe (27; Figure 1) to exhaust gases from the cleaning apparatus (Figure 1; column 4; lines 14-65); and a second inlet pipe (14; Figure 1) to introduce an absorption liquid (“water”; Figure 1,4) into the absorption column (10; Figure 1; column 4; lines 14-65), wherein the first inlet pipe (25,25M; Figure 1) is electrically grounded (see grounding of 25 through 10).

Applicant’s claim requirements of “an ammonium chloride gas containing the ammonium chloride powder”, and “in order to prevent an electrostatic charge generated by friction between the ammonium chloride powder and the first inlet pipe” are a claim requirements of intended use of the pending apparatus claims. It is well established that apparatus claims must be structurally distinguished from the prior art (In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does ." (emphasis in original) Hewlett - Packard Co . v. Bausch & Lomb Inc ., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), MPEP – 2114). Further, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Exparte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

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Reif does not teach that his first inlet pipe (25,25M; Figure 1) is made of a corrosion-resistant material.

Holst teaches scrubber columns and components of scrubber columns (column 14; lines 42-48) with “coated structural steel” or “metal alloys” to protect said components from “corrosive species in the fluid streams being processed therein”.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Reif to use corrosion resistant materials for his first inlet pipe as taught by Holst.

Motivation for Reif to use corrosion resistant materials for his first inlet pipe as taught by Holst is for protecting scrubber components from “corrosive species in the fluid streams being processed therein” as taught by Holst (column 14; lines 42-48).

Response to Arguments

6. Applicant’s arguments filed November 12, 2004 have been fully considered, but are not persuasive.

7. In response to applicant’s argument that there is no suggestion to combine the references of Hoist, Mark et al (U.S.Pat. 5,955,037) in view of Malcolm, David H. (US 4,541,844 A), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

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generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner's cited motivation to combine the references of Hoist, Mark et al (U.S.Pat. 5,955,037) in view of Malcolm, David H. (US 4,541,844 A) was for "for creating charged droplets that impart "highly efficient particle collision and collection" as taught by Malcolm (column 4; lines 50-63) and for providing an alternate and equivalent material of construction". The Examiner believes that the references, when taken as a whole, teach and suggest Applicant's claimed invention.

Applicant states:

“

As disclosed in the Specification, this novel and nonobvious cleaning apparatus provides a safer environment by preventing the ignition of combustible hydrogen and oxygen mixtures by the electrostatic charges buildup in the pipes created by the friction between ammonium chloride powders and inside walls of exhaust passageways in the cleaning apparatus (Specification, page 5, lines 8-25). Claim 3 has been amended to more clearly recite such a cleaning apparatus.

“

In response, the Examiner's above-proposed combinations teach the claimed structural limitations as stated above. As a result, the Examiner believes that Applicant's specific intended use of "preventing the ignition of combustible hydrogen and oxygen mixtures by the electrostatic charges buildup in the pipes" is taught by the Examiner's combination. Further, when the

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structure recited in the references is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. MPEP 2112.01

Applicant states:

“

Hoist is silent with regard to the use of charging in any of the disclosed components in its effluent gas stream treatment system or any buildup of electrostatic charges generated by friction between ammonium chloride powders and inside walls of an exhaust gas passageway.

“

In response, the Examiner has proposed that motivation to ground Hoist's scrubber as taught by Malcolm and to use stainless steel in place of steel as taught by Hoist is for creating charged droplets that impart "highly efficient particle collision and collection" as taught by Malcolm (column 4; lines 50-63) and for providing an alternate and equivalent material of construction. The result of the combination, i.e. grounding, produces applicant's claimed invention. Further, with respect to Applicant's position that Hoist does not discuss "electrostatic charges generated by friction between ammonium chloride powders and inside walls of an exhaust gas passageway", it is well established that apparatus claims must be structurally distinguished from the prior art (In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does ."(emphasis in original) Hewlett - Packard Co . v. Bausch & Lomb Inc ., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), MPEP – 2114). Further, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus

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teaches all the structural limitations of the claim. *Exparte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Applicant states:

“

...the proposed modification would have been obvious for the creation of charged droplets that “impart highly efficient particle collision and collection.”. However, Applicants respectfully submit that such a reason provided by Malcolm relates to the influence of the voltage potential applied between the inner and outer walls of the disclosed annulus on the micron-size droplets used in the dielectrophoretically....

“

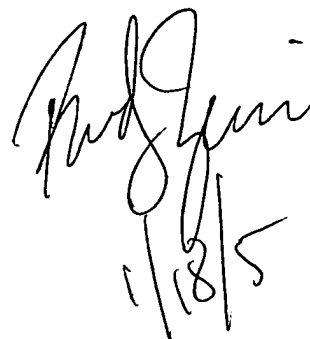
Applicant’s position amounts to a position of nonanalogous art. In response, a prior art reference is analogous if the reference is in the field of applicant’s endeavor or, if not, the reference is reasonably pertinent to the particular problem with which the inventor was concerned. In *re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See MPEP § 2141.01(a) for case law pertaining to analogous art. In particular, both Hoist and Malcolm are in the field of applicant’s endeavor of effluent gas processing. Further, Hoist states “As mentioned, the pre-oxidation treatment unit 905 and the post-oxidation treatment unit 917 may comprise scrubbers of any suitable type, wet as well as dry scrubbers, wet electrostatic precipitators, as well as any other suitable pre-oxidation and post-oxidation treatment means. ” (column 22; lines 35-40; column 24; lines 22-26). As such electrostatic considerations among the references are universally understood and applied.

Conclusion

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (571) 272-1439.



Rudy Zervigon
1/18/15